



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,060	01/31/2002	Steven Teig	SPLX.P0072	3948
48947	7590	12/20/2005	EXAMINER	
STATTLER, JOHANSEN, AND ADELI LLP 1875 CENTURY PARK EAST SUITE 1360 CENTURY CITY, CA 90067			KIK, PHALLAKA	
			ART UNIT	PAPER NUMBER
			2825	

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/066,060	TEIG ET AL.	
	Examiner	Art Unit	
	Phallaka Kik	2825	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action responds to the RCE and amendment filed on 11/8/2005. Claims 1-22 are pending, wherein claims 1,6,7,9,11,14,19-22 have been amended.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/8/2005 has been entered.

Claim Objections

3. **Claims 2,10-12,19-22** are objected to because of the following informalities:

As per **claim 2**, "includes" (line 2) should be --include-- for proper grammar (i.e., plural subject/verb agreement).

As per **claim 10**, "the other" (line 4) should be --other-- for proper antecedent basis.

As per **claims 11-12**, the claims are objected to for incorporating the above error into the claims by claim dependency.

As per **claim 19**, "the best" (line 5) should be --a best-- for proper antecedent basis.

As per **claims 20-22**, the claims are objected to for incorporating the above error into the claims by claim dependency.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-22** are rejected under 35 U.S.C. 102(b) as being anticipated by **Carothers et al.** (WO 9734316 A2).

As per **claims 1,14**, all of the elements of the claims are described on page 9, lines 15-23, wherein the identified set of initial routing solutions for each net corresponds to the candidate routes being generated for each net, and wherein the specifying of the best routing solution corresponds to the reduction of the candidate routes to arrive at the fully compatible set (i.e., a best routing solution that meets the desired constraints--see also page 11, lines 1-20), wherein the best routing solution having one route for each net in the group of nets is further described on page 21, line 2 to page 22, line 15, wherein the computer program, computer readable medium, and set of instructions for implementing the method are further described on page 10, lines 4-15.

As per **claims 2-5,15-18**, all of the elements of claims 1 and 14, from which the respective claims depend, are discussed in the rejection of claims 1 and 14 above, wherein the all routing solutions or at least one routing solution include(s) a route for all

Art Unit: 2825

and/or some nets in the group of nets are also described on page 11, lines 1-20 (see also page 14, lines 4-13) wherein a route for some but not all of the nets in the group are possible solutions as evidenced by the fact that some routing phases do not produce a route for all of the nets.

As per **claims 6-13,19-22**, all of the elements of claim 1 and 14, from which the respective claims depend, are discussed in the rejection of claims 1 and 14 above, wherein the further limitations of computing metric cost, selecting the routing solution based on the computed metric cost, including taking into consideration the length of the route and metric costs comparisons, including with metric thresholds (i.e., electrical constraints including wirelength--page 4, lines 9-15; page 9, lines 20-23) are also part of the compatibility determination/selection (page 19, line 1 to page 22, line 8) and congestion determination/selection (page 33, line 3 to page 36, line 18) which includes computation of weights (i.e., metric cost) for comparisons (page 34, line 6 to page 35, line 6; page 35, line 19 to page 36, line 18) (see also Figs. 32, 35A. 37).

Remarks

6. The objections of claims 9,19,21-22 due to the noted informalities are withdrawn in light of Applicant's amendment filed on 11/8/2005, which corrected the informalities. However, claims 2,10-12,19-22 are newly objected to due the minor informalities as given above, some of which were introduced by Applicant's amendment to the claims.

7. The rejections of claims 1-22 under 35 U.S.C. 102(e) as being anticipated by **Pileggi et al.** (US Patent Application Publication No. 2001/0047507) are withdrawn in light of Applicant's amendment and arguments filed on 11/8/2005, wherein as pointed

Art Unit: 2825

out by Applicant, **Pileggi et al.** failed to teach or suggest the specifying of the best routing solutions based on the initially identified sets of routing solutions for each net, in which each of a plurality of the initial set of routing solutions have a plurality of routes, as claimed, whereas **Pileggi et al.** teaching of the "smear" routings do not specifically provides for a set of routing solutions for each net from which the specifying of the best solution is made (see Applicant's amendment filed on 11/8/2005, pages 8-11).

However, as given above, **Carothers et al.** (WO 9734316 A2) provide for all of the elements of the claims.

8. Applicant should note that although **Pileggi et al.** is not used in the rejections above, the cost metric calculations for selecting/specifying the best routing solution could also be applied to the method/system of **Carothers et al.** (WO 9734316 A2) since such cost metric calculations provide the benefits of having a quantitative value for the quality of the routing solution so that comparisons and/or selection of the different routing solutions can readily be made while benefiting from the performance improvement of the method/system of **Carothers et al.** (see page 3, lines 1-17). Other metric cost calculations as found in the prior arts made of record can also be similarly combined to arrive at Applicant's claimed invention.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Therefore, Applicant is requested herein to consider them carefully in response to this Office Action. In particular, the following prior arts made of record are most relevant:

Cho et al. (U.S. Patent Application Publication No. 2003/0005398, especially paragraphs [0007], [0065]-[0074]);

Maziasz et al. (U.S. Patent No. 6,209,123, especially col. 36, line 5 to col. 37, line 45);

Carothers et al. (U.S. Patent No. 6,353,918, especially col. 2, lines 25-50);

Nitta et al. (U.S. Patent No. 6,415,427, especially col. 9, lines 11-41; col. 12, line 59 to col. 13, line 36).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phallaka Kik whose telephone number is 571-272-1895. The examiner can normally be reached on Monday-Thursday, 8:30AM-7PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Chiang can be reached on 571-272-7483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner for Patents

Application/Control Number: 10/066,060

Page 7

Art Unit: 2825

P. O. Box 1450

Alexandria, VA 22313-1450

or faxed to:

571-273-8300

A handwritten signature in black ink, appearing to read "Phallaka Kik", written in a cursive style.

Phallaka Kik
U.S. Patent Examiner
Art Unit 2825
December 10, 2005